ANGELLY CABRERA

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EDUCATION

University of Southern California, Los Angeles, CA
B.S. Electrical and Computer Engineering May 2024

PROFESSIONAL EXPERIENCE

Paragon Policy Fellowship May 2025 – Present
Technology Policy Fellow, Arizona Team

- Designed a citywide data literacy framework to assess key competencies in data interpretation, visualization, ethics, and analysis with benchmark proficiency thresholds.
- Developed a technical specification for scaling short-answer grading with an LLM, outlining rubric alignment, cost modeling, and privacy safeguards for personally identifiable information.

America on Tech June 2025 – August 2025
Lead Instructor, TECH360 - AI Literacy & Ethics

- Delivered a project-based AI foundations course to 60 high school students, covering machine learning, deep learning, generative AI, recommendation systems, and algorithmic bias.
- Improved AI literacy among students from historically underestimated communities in Los Angeles by 48%, based on pre- and post-assessment scores (average post-score: 91%).

Microsoft & Cyborg Mobile May 2024 – August 2024
Software Engineering Intern, IC3 (M365 Substrate)

- Developed a C# console application to host and migrate Microsoft Teams performance testing services from Azure Classic Cloud to Kubernetes following its deprecation.
- Containerized testing services with Docker, deployed to Kubernetes using YAML, and automated XML-based performance tests via Azure Pipelines.

Microsoft & Cyborg Mobile May 2023 – August 2023
Software Engineering Intern, E+D (M365 Substrate)

- Developed a data extraction, analysis, and storage pipeline using LLMs, KQL, and cloud databases to summarize incident reports, identify patterns, and generate visuals.
- Applied language transformers to match predicted patterns, achieving 90% accuracy in predictions and 73% precision in similarity matching.

University of California, Los Angeles June 2022 – April 2023
Break Through Tech AI Fellow. Verizon Team (NCWIT Collegiate Finalist)

- Compiled a dataset and trained an object detection model to classify smartphones by brand and color for inventory tracking, achieving 96% confidence and 98% precision.
- Collaborated with Verizon data scientists to design a color-sorting method using bounding boxes, RGB histograms, and Euclidean distance to distinguish 800+ color variations.

Microsoft & Cyborg Mobile June 2022 – August 2022
New Technologist Intern

- Developed a real-time climate and emergency resource web app using React JS, integrating weather and air quality APIs to generate forecasts and provide health-based alerts.
- Built an MVP allowing users to register health conditions and receive warnings for unsafe air quality or extreme weather, using map APIs to direct them to nearby safety shelters.

RESEARCH EXPERIENCE

Sarcasm-Enhanced Hate Speech Detection April 2024 - August 2025
Advisor: Dr. Antonio Ortega

- Proposed sarcasm pre-training as a transfer learning strategy to improve covert hate speech detection, addressing data scarcity in understudied implicit abuse.
- Improved hate speech detection on a BERT+BiLSTM using sarcasm pre-training, increasing recall by 9.7% on mixed explicit/implicit samples and precision by 7.8% on implicit-only samples.

Monitoring Productivity in the Workplace January 2024 – March 2024
Advisor: Dr. Shrikanth Narayanan

- Performed statistical tests on physiological and survey data to analyze feature variability in stress, mood, and productivity across work environments.
- Built and optimized a random forest classifier for self-reported attributes using mean imputation, z-score normalization, and hyperparameter tuning with cross-validation.

Leaf Rust Detection on Low-Resolution Images August 2023 – July 2024
Advisor: Dr. Shrikanth Narayanan (Awarded Honorable Mention)

- Applied a high-pass filter to low-resolution leaf images and evaluated its effectiveness on a CNN across different resolutions, achieving 86% F1-score at 64x64 and 94% recall at 128x128.
- Evaluated high-pass filtering technique against grayscale, full-color, and histogram equalization at 128x128 resolution, yielding higher F1-scores by 77, 26, and 15 percent, respectively.

Wearable Bio-Sensing for Family Well-Being January 2022 - December 2023
Advisor: Dr. Shrikanth Narayanan

- Engineered preprocessing scripts to convert biometric data from wearable devices into datasets with daily metrics, such as sleep analysis, for each participant across 14 families.
- Applied audio transformers to extract event tags (e.g., yelling, crying) from recordings, creating detailed histograms of speech patterns to help identify inter-family dynamics.

Understanding the Role of Machine Learning in Music January 2021 - May 2021
Advisor: Dr. Shrikanth Narayanan

- Analyzed music API datasets to identify over 100 key features, developing music genre recommendations that cater to diverse listener preferences.
- Presented findings at the fellowship's final symposium, contributing to the community's understanding of AI's potential in media and entertainment.

PUBLICATIONS & PRESENTATIONS

- **A. Cabrera**, L. Lei, & A. Ortega. "Transfer Learning via Lexical Relatedness: A Sarcasm and Hate Speech Case Study," [Published on arXiv]. Under review: Queer in AI @ NeurIPS 2025
- **A. Cabrera**, K. Avramidis, & S. Narayanan, "Early Detection of Coffee Leaf Rust Through Convolutional Neural Networks Trained on Low-Resolution Images," [Published on arXiv]
- K. Avramidis, T. Feng*, M. Parga*, A. Kommineni*, **A. Cabrera***, G.M. Lucas, B. Becerik-Gerber, S.C. Roll, & S. Narayanan, "Unveiling Stress and Behavioral Patterns in Work Environments through Ubiquitous Sensing," Submitted to Conf. on Affective Computing & Intelligent Interaction, 2024.[1] (Not Accepted)
- A. C. Timmons, J. B. Duong, K. E. Carta, S. N. Walters, D. I. Benamu, G. A. Jumonville, G. F. Freitag, A. A. Tutul, **A. Cabrera**, J. S. Comer, T. Chaspari, & S. Narayanan, "Psychophysiology sensing via wearables to model family well-being," Society for Affective Science Annu. Conf., Long Beach, CA, 2023. (Paper Abstract)

INVITED TALKS

- **Cabrera, A.***, Dove, C.*, Del Pesce, V.* (2024). "STEAM Generative AI Ethics Workshop." Led an introductory workshop on generative AI and AI ethics at the University of Southern California's Black College Success STEAM Closing Program.
- **Cabrera, A.***, Lopez, A*. (2024). "Bridging Cultures, Building Breakthroughs: AI Ethics." Led a workshop on the importance of ethics and Latinx representation at the University of California, Riverside's SHPEtinas conference.
- **Cabrera, A.***, Saldana G.*, Hassan N.*, Umoren E*. (2023). "Incident Post-Mortem Analysis - Auto Resolution." Selected as one of the top 50 teams from a competitive organization-wide selection to present at Microsoft's E+D Intern Demo Symposium.

PROJECTS

- **Plant Health Monitoring System** (Capstone): Built a microcontroller-based system using sensor input and unsupervised learning to detect early plant stress. [GitHub]
- **FPGA-Based Platform Game Controller** (Final Project): Developed a retro-inspired platformer using Verilog on the Nexys 4 FPGA board. [GitHub]

[1] Asterisk * indicates equal contribution.

- **Flick Pick Chrome Extension** (Hackathon): Created a Chrome extension that applies collaborative filtering to generate personalized movie recommendations. [GitHub]
- **Electric Guitar with Band-Reject Filter** (Final Project): Built an electric guitar with a band-reject circuit to amplify signals while filtering out and attenuating high-frequency noise.

COMMUNITY OUTREACH

USC Viterbi K–12 STEM Center January 2024 – April 2024

- Designed and led AI workshops for K–12 students from local schools, including interactive sessions on generative AI using Google Colab.
- Co-hosted USC's booth at the LA Maker Faire, educating families on the fundamentals of unsupervised learning through hands-on demos.

Break Through Tech April 2023 – March 2024

- Organized outreach events across Southern California to encourage women to explore careers in machine learning and data science through the fellowship.
- Led an interactive workshop at UCR's SHPEtinas conference on algorithmic bias, discussing how models encode inequality and why Latine representation in AI is important.

AWARDS & HONORS

- **Albert Dorman Future Leader Award**, USC 2024
  Awarded to top graduating Viterbi seniors for academic excellence and leadership potential.
- **Grand Challenges Scholar**, National Academy of Engineering 2024
  Recognized for interdisciplinary engagement across the five NAE Grand Challenge Mindsets.
- **Honorable Mention**, National Center for Women & IT ($2,500) 2024
  One of twelve undergraduate and graduate women recognized for impactful computing research.
- **Research Scholar**, USC Ming Hsieh Institute ($1,000) 2023 - 2024
  Awarded to five undergraduates in the department for exceptional contributions to research.
- **Finalist**, National Center for Women & IT 2023
  Recognized as one of 47 undergraduate and graduate women for computing innovation.
- **College Match Finalist**, Questbridge 2020
  National program for high-achieving, low-income students earning full-ride scholarships.

SELECTED SCHOLARSHIPS

- **Presidential Scholar**, USC ($54,000) 2020 - 2024
  USC's highest merit-based scholarship for incoming students.
- **Linn-Viterbi Scholar & Fellow**, USC ($13,000) 2020 - 2024
  Awarded to support academic excellence, research, and leadership in engineering.

PROFESSIONAL DEVELOPMENT

- Científico Latino Graduate School Mentorship Initiative 2024
- Google Computer Science Research Mentorship Program 2023
- Google LatinX Student Leadership Summit 2022
- America Needs You Fellowship 2021 - 2022

SKILLS & INTERESTS

- **Programming Languages:** Python, C++, C#, MATLAB, Verilog, SQL, R
- **Machine Learning:** Deep Learning, Supervised/Unsupervised Learning, Statistical Analysis
- **Product & Research Skills:** Data Analysis, Problem Scoping, User-Centered Design, Prototyping, Technical Writing, Presenting, Cross-Functional Collaboration
- **Research Interests:** Human-Centered AI, Affective Computing, Computational Social Science, AI Alignment & Governance
- **Languages**: Spanish (Native Speaker), English (Native Speaker)